

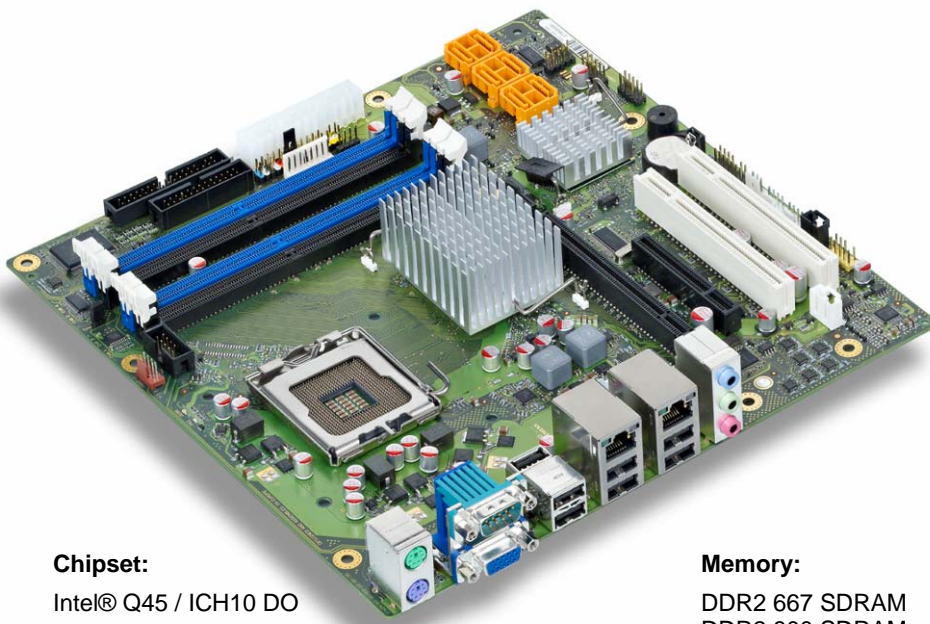
Industrial Mainboard D2831-S µATX

Issue October 2008

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Intel® Q45 Express Chipset for DDR2 800 SDRAM Memory and
Intel® Core™2 Duo Processors and Core™2 Quad Processors (up to 1333 MHz FSB)

Designed & approved for enhanced operating temperature range from 0°C to 60°C
Designed & approved for 24/7 continuous operation



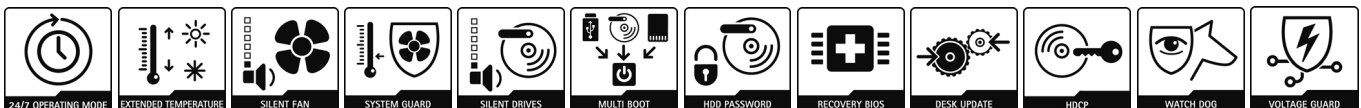
Chipset:
Intel® Q45 / ICH10 DO

Processors:
Intel® Core™ 2 Quad Q9xxx / Q8xxx Processors, LGA775 with 1333/1066 MHz FSB
Intel® Core™ 2 DUO E8xxx / E6xxx Processors, LGA775 with 1333/1066/800 MHz FSB
Intel® Core™ 2 DUO E7xxx / E4xxx Processors, LGA775 with 1333/1066/800 MHz FSB
Intel® Pentium® Dual Core E2xxx Processors, LGA775 with 800 MHz FSB
Intel® Celeron® Dual Core E1xxx Processors, LGA775 with 800 MHz FSB
Intel® Celeron® 4xx Processors, LGA775 with 800 MHz FSB

Memory:
DDR2 667 SDRAM
DDR2 800 SDRAM



Product Features:
Dual GbE LAN onboard
PCI Express generation 2
State-of-the-art graphics onboard
5.1 multichannel audio onboard
Trusted Platform Modul (TPM) V1.2 onboard
Serial ATA II RAID onboard
USB 2.0 onboard



Board Size	µATX: 9.6" x 9.6" (243.8 x 243.8 mm)
Chipset	Intel® Q45 / ICH10 DO

Memory
 4 DIMM Sockets (1.8V), 512MB - 16GB, Single Channel or Dual Channel DDR2 800/667 SDRAM, unbuffered, no ECC (For details on recommended RAM, please refer to our website)

Processors
 Intel® Core™ 2 Quad Q9xxx / Q8xxx, 1333/1066 MHz FSB,
 Intel® Core™ 2 Duo E8xxx / E6xxx, 1333/1066 MHz FSB,
 Intel® Core™ 2 Duo E7xxx / E4xxx, 1066/800 MHz FSB,
 Intel® Pentium® Dual Core E2xxx, 800 MHz FSB,
 Intel® Celeron® Dual Core E1xxx, 800 MHz FSB
 Intel® Celeron® 4xx, 800 MHz FSB
 Compatible with Intel® 06 and 05A processors, max. 95W (LGA775)
 (For details on supported processors please refer to our website)

Power Specification
 BTX12V (24 Pin) or ATX12V (20 Pin) Power Supply required
 5V and 3.3V supply voltage on PCI slots (PCI Rev. 2.3)
 3.3V auxiliary supply voltage on PCI Slots (wake-up support)

Power Supply (PS) Requirements
 for onboard components (worst case)

Source	Voltage	PS Load (min.) ¹	Voltage Tolerance (max)	Mainboard Current (max.)
Main Power Supply	+ 12 V	0.3 A	± 5 %	12 A
	- 12 V	0 A	± 10 %	0.05 A
	+ 5 V	0.6 A	± 5 %	6 A
	+ 3.3 V	0 A	± 5 %	0.5 A
Aux. Power Supply	+ 5 V	0 A	+5 % / -3%	2 A

1) PS must support these load conditions if low power processors (e.g. Celeron 4xx) are used.

BIOS
 Phoenix Secure Core BIOS Version 6.00
 modified and adapted by Fujitsu Siemens Computers

Security Features
 Recovery BIOS, System and BIOS Password, Write Protection for Floppy Disk Drive, Boot Sequence Control, Serial/Parallel/USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS. Trusted Platform Module (TPM) V1.2 (Infineon)

Special Features
 Silent Fan Independent temperature related processor fan and system fan supervision and control
 System Guard View and adjust Silent Fan features
 Voltage Guard Realtime operating voltage supervision
 Silent Drives Noise reduction for optical and hard disk drives
 Recovery BIOS Restores a corrupted BIOS
 Desk Update Simple driver update with Driver&Utilities DVD
 Multi Boot Comfortable boot from any boot device
 HDD Password Access protection for disk drives

Designed for industrial applications
 Longlife components Designed for 24/7 use in industrial applications
 Tin-plated PCB Improved durability of PCB surface
 Revision control Less hardware changes and outstanding information management
 Extended lifetime Mainboard available for more than three years
 Enhanced operating temperature range (0°C-60°C)¹⁾

External Connectors

Diagram showing the layout of external connectors on the mainboard: Mouse, COM, LAN (ASF), LAN, Audio, Keyboard, VGA, USB, USB, USB.

1) forced cooling required, see technical documentation for detailed requirements

Graphics
 Intel® GMA4500 integrated graphics controller, shared memory (up to 256MB), DirectX 10 compliant, upgradeable with PCI Express x16 graphics card or ADD2+ cards

Audio
 Realtek ALC 663, 5.1-channel, High Definition audio

LAN
 Dual Realtek RTL8111CP Ethernet Controller with 10/100/1000 Mbit/s, Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, bootix® PXE Support, ASF 2.0, Teaming Support

Drives
 - 6 Serial ATA II 300 Interfaces (up to 3GBit/s, NCQ); RAID 0, 1, 10, 5
 - Floppy

Version D2831-S

Features	
Chipset	iQ45, ICH10DO
Board Size	µATX
VGA	✓
Stereo Audio / 5.1 Multichannel Audio	- / ✓
Buzzer / int. Speaker Support	✓ / ✓
Dual LAN Gbit / 100 Mbit / 10 Mbit	✓ / ✓ / ✓
LAN ASF / DASH / WoL / Boot / iAMT	✓ / - / ✓ / ✓ / -
SATA / ATA / RAID / eSATA Support	✓ / - / ✓ / ✓
FireWire™ / USB 2.0	- / ✓
FAN monitored PSU ²⁾ / CPU / AUX1 / AUX2 / AUX3	✓ / ✓ / ✓ / ✓ / ✓
FAN controlled PSU ²⁾ / CPU / AUX1 / AUX2 / AUX3	✓ / ✓ / ✓ / ✓ / ✓
TEMP monitored CPU / ONB1 / ONB2 / OFFB	✓ / ✓ / ✓ / -

Special Features
 Silent Fan / Silent Fan LT / System Guard / Silent Drives ✓ / - / ✓ / ✓
 Recovery BIOS / Desk Update / Multi Boot ✓ / ✓ / ✓
 HDD Password / HDD Encryption ✓ / -
 Logo Boot Option / Intel On Screen Branding ✓ / ✓
 Realtime operating voltage supervision onboard ✓
 High Efficient Core regulator design (85% @ 65W) ✓
 Prepared for internal USB stick and USB flashdrive ✓

Internal Connectors	
DIMM Sockets (DDR2 800)	4
PCI Express x16 Slot (Gen. 2)	1
PCI Express x8 Slot (4 Lanes)	1
PCI Express x1 Slot	-
PCI Slots (32Bit, 33 MHz, Rev. 2.3)	2
SATA (300) / ATA (100) / Floppy	6 / 0 / 1
S/PDIF (digital Audio) OUT / IN	1 / -
Audio Input (analogue CD type)	1
Frontpanel High Definition Audio (9-Pin)	1
FireWire™ (9-Pin, Intel standard Header)	-
USB (2.0, ~480 MB/s, 2 Channels per Connector)	2
Specific socket for USB stick	1
Specific socket for USB flashdrive	1
Serial (FIFO, 16550 compatible)	1
FAN PSU ²⁾ / CPU / AUX1 / AUX2 / AUX3 ³⁾	1 / 1 / 1 / 1 / 1
SMBus (Case Temperature) / Intrusion (Case Open)	- / 1
Parallel (EPP/ECP) Pin Connector ⁴⁾	1
Status LCD Display Connector	1
Power 24 Pin (BTX) / 4 Pin (12V Processor Supply)	1 / 1

External Connectors	
VGA Sub D / DVI ⁵⁾	1 / -
Audio Mic. In / Line in / Line out (configurable)	1 / 1 / 1
Audio Surround / RearSurround / CenterLFE	- / - / -
S/PDIF (digital Audio)	-
LAN (RJ-45)	2
PS/2 Mouse / Keyboard	1 / 1
FireWire™ (6-Pin, IEEE 1394)	-
USB (2.0, ~480MB/s)	6
Serial (RS232, FIFO, 16550 compatible)	1
Parallel (EPP/ECP) ⁴⁾	-

2) Not supported by standard Power Supplies 3) FAN3- connector supports PWM- and 3-wire fan
 4) External parallel port possible via connector cable 5) DVI possible via DVI extension D2823